

## Calendar of Events

## In April

Sat. April 10, 9:00am

[Productive Meetings](#)  
IEEE-Chicago Section

Sun-Tues. April 11 - 13

[Networking, Sensing & Control](#)  
Cybernetics

Tues. April 13, 7:00pm

[Executive Committee](#)  
IEEE-Chicago Section

Wed. April 14, 11:30am

[Smart Grid](#)  
Power & Energy

Wed. April 21, 6:30pm

[Radio Frequency Fields](#)  
Electromagnetic

Thurs-Fri. April 22 &amp; 23

[Biomedical Systems](#)  
Control Systems

Sat. April 24, 9:00am

[Leading When Not In Charge](#)  
IEEE-Chicago Section

Wed. April 28, 6:30pm

[Nuclear Power](#)  
Fox Valley Subsection

Wed. April 28, 6:30pm

[Student VoIP](#)  
Fox Valley Subsection

## In May

Tues. May 11, 8:00am

[Mini-Symposium](#)  
Electromagnetic

Mon-Fri. May 17-21

[Collaborative Technologies](#)Please email upcoming events to [Work In Motion](#) for inclusion in the calendar.

## This Month's Articles

**Chair's Corner: Chicago SMCS, CS, WIE, TMC, VTS, RAS & GOLD Start**Chicago Chapters of the **System, Man and Cybernetics Society (SMCS)**, and **Women in Engineering (WIE)** are now meeting. The **Vehicular Technology Society (VTS)**, **Robotics & Automation Society (RAS)**, **Computer Society (CS)**, **Technology Management Council (TMC)** and **Graduates of the Last Decade (GOLD)** soon will be! [\[more\]](#)**IEEE-Chicago to Offer Management Classes at Harper College**The Chicago Section will offer **Positive and Productive Meetings** on April 10<sup>th</sup> and **Leading When You're Not In Charge** on April 24<sup>th</sup>. [\[more\]](#)**Here's Your Chance To Run For Office!**The **IEEE-Chicago Section Nominating Committee** is seeking nominations for the Section's **Executive Committee**. Deadline is Tax Day. [\[more\]](#)**Inspired by Fish, New IEEE Fellow Creating Tomorrow's Robots****Northwestern University** Professor **Kevin Lynch** was elevated to IEEE Fellow "for contributions to robotic manipulation, motion planning, and control of mechanical systems." [\[more\]](#)**PES Offers Students Opportunity to Question Young Engineers**The **Chicago Chapter of the IEEE Power & Energy Society** sponsored a very successful pizza luncheon at **Illinois Institute of Technology** featuring a panel of four young power engineers. [\[more\]](#)**Chicago EMC Society & WIE Host EMC Society President From Rome**Chicago EMCS Chapter Secretary **Jerry Meyerhoff** reports on the Chapter's February meeting co-hosted with the Chicago Chapter of Women in Engineering and featuring the EMC Society President, **Francesca Maradei**. [\[more\]](#)**Chair's Corner: Chicago SMCS, CS, WIE, TMC, VTS, RAS & GOLD Start**

I am very excited because a number of new Chicago IEEE Chapters have just held or are about to hold their first meetings. At the **NetSecure Conference** at the **Illinois Institute of Technology (IIT)** on March 4<sup>th</sup>, Chicago Section members hoping to re-establish a Chicago Chapter of the [Computer Society \(CS\)](#) had an informational booth where they talked to over 40 interested individuals. And, on March 23<sup>rd</sup>, the **Northwestern University Master of Engineering Management Program** hosted the first meeting of the Chicago Chapter of the [System, Man and Cybernetics Society \(SMCS\)](#). **Chris Nemeth** of **Klein Associates** gave a fascinating talk on the similarities and differences between resilience engineering and traditional ideas of system performance, exploring how systems cope with varying unforeseen demands and sometimes succeed and sometimes fail to respond in a satisfactory manner. Finally, the Chicago Chapter of the IEEE affinity group, [Women In Engineering \(WIE\)](#), held a joint meeting with the Chicago Chapter of the Electromagnetic Compatibility Society (EMCS) featuring the president, **Francesca Maradei**, of the EMC Society. (Scroll down for a report on that meeting.)

If you missed those events, don't worry: more are planned. The newly formed Chicago Chapters of the [Vehicular Technology Society \(VTS\)](#) and the [Computer Society \(CS\)](#) will be holding their first meetings in May. For updates, watch e-Scanfax and the [Chicago Section Calendar](#). In addition, the [Technology Management Council \(TMC\)](#) is planning a conference for the fall. Contact [Bob Burke](#) if you'd like to aid with that conference. Contact [Robert Pellegrini](#) if you'd like to help start the Chicago Chapter of the [Robotics & Automation Society \(RAS\)](#). Or [contact me](#) if you'd like to take the leadership in forming a [Graduates Of the Last Decade \(GOLD\)](#) affinity group. A GOLD group might appeal to younger engineers by meeting in Chicago and by networking with other engineering organizations. At the **Chicagoland Engineering Awards**

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**Banquet**, I sat next to the Vice President of the **Society of Women Engineers** who said that her organization is very active in the city.

I look forward to meeting you at a future IEEE-Chicago section event. There are more and more to choose from!

Sincerely,  
[William \(Bill\) Nartker](#)  
IEEE-Chicago Section Chair

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### IEEE-Chicago to Offer Management Classes at Harper College



**Marianne Rowe-Dimas**

In April, the Chicago Section will offer two Saturday morning classes taught by popular, returning instructor **Marianne Rowe-Dimas**. In the **April 10<sup>th</sup>** session on [Positive and Productive Meetings](#), learn how to foster collaboration, promote positive communication and make every minute count. Also, gain insight into how to disagree or interrupt agreeably. In the session on [Leading When You're Not In Charge](#) on **April 24<sup>th</sup>**, learn how to get others to be receptive to your ideas, views and recommendations and how to adapt your personal style to influence and work more effectively with others. For questions and registration, call Harper College at 847.925.6300. Early Registration is recommended.

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### Here's Your Chance To Run For Office!

Would you like to learn new skills, increase your visibility in the engineering community, and meet other talented IEEE members? Serving on the **IEEE-Chicago Section Executive Committee** is your chance to do just that. Each year, the Chicago Section holds elections for the following positions:

#### Section Officers

- **Chair** (Runs the show)
- **Vice Chair** (Chair in waiting)
- **Treasurer** (Handles the money)
- **Secretary** (Records what's going on)

#### Standing Committee Chairs

- **Awards** (Gives out the "Way to Go's")
- **Conferences** (Works with IEEE societies that are holding conferences locally and organizes Section-sponsored conferences)
- **Education Activities** (Works with K-12, coordinate other education opportunities)
- **Membership Development** (Tracks and promotes membership)
- **Professional Activities** (Develops non-technical programs and makes them happen)
- **Programs** (Monitors and coordinates Section programs and seeks to improve them)
- **Member Communications** (Responsible for e-Scanfax and website)
- **Special Events** (Organizes fun outings)
- **Student Activities** (Mentors local Student Branches)

Candidates must be IEEE members willing to attend Section meetings held the second Tuesday of each month at **DeVry University Addison Campus** and to devote a few hours a month between meetings to their primary duties. If this sounds interesting to you, please email [Bernard T. Sander](#), Chair of the **IEEE-Chicago Section Nominating Committee**, for a list of the duties of each elective office and details of the application process. Applications for the 2010/2011 candidates must be submitted to the Nominating Committee **by April 15<sup>th</sup>, 2010**.

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### Inspired by Fish, New IEEE Fellow Creates Tomorrow's Robots



"Everyone is interested in robotics at some level," says **Kevin Lynch**, who was elevated to IEEE Fellow "for contributions to robotic manipulation, motion planning, and control of mechanical systems."

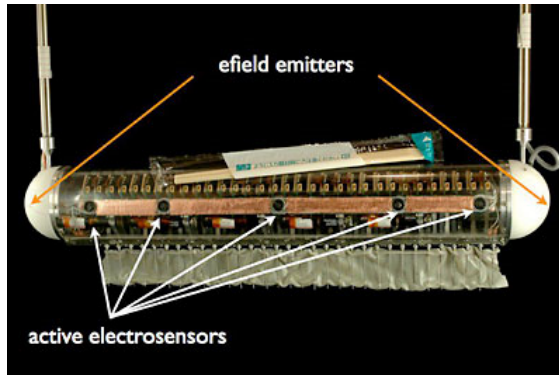
**Kevin Lynch**

Lynch, who is professor of Mechanical Engineering at the **Robert R. McCormick School of Engineering and Applied Science at Northwestern University**, considers himself lucky to be "able to have a career in something that interested me as a child. Most

children have ideas about what robots are, and that's what makes robotics great for education. We can use those ideas and interests to motivate further study in math, physics, engineering, and computer science, of course, but also in fields such as psychology and biology."

But what exactly is a robot? By one definition, a robot senses its environment, chooses a course of action based on this information, and performs physical work. According to Lynch, this definition makes for good discussion but is far from perfect. For example, a toaster may fit the definition, but most people would agree that a toaster is not a robot! "Even if there is no simple definition of a robot," says Lynch, "we can identify core robotics research topics in sensory perception, reasoning with uncertainty, and motion planning and control."

And how do robots fit with biology? Lynch and his colleagues developed an underwater robot that navigates known and unknown environments using an electrolocation system inspired by the weakly electric knifefish. This fish senses its murky environment not by using its eyes, but by emitting an electric field. It uses voltage sensors distributed over its body to detect and interpret disturbances in its environment.



Lynch, in collaboration with Malcolm MacIver and colleagues, developed an underwater robot which has electric field emitters and sensors to detect disturbances.

Perhaps Lynch's most significant contribution to the field can be summed up by the phrase he coined: "dynamic underactuated nonprehensile manipulation." Most robots manipulate objects by grasping, but "nonprehensile" or "graspless" manipulation allows other options, such as pushing, sliding, rolling, or throwing. When an object is not fixed in a grasp, the robot can use dynamics to help control the motion of the object, reducing the number of motors it needs. The robot, then, is "underactuated."

One application of Lynch's work is principled, rather than ad hoc, design of automated parts feeders for industrial automation. Related ideas in dynamic locomotion may lead to next-generation legged robots for navigation of rough terrain for military, space, and rescue applications.

According to Lynch, the IEEE, through its **Robotics and Automation Society**, is the leading proponent of robotics research. He is, therefore, "honored and humbled" to be named an IEEE Fellow.

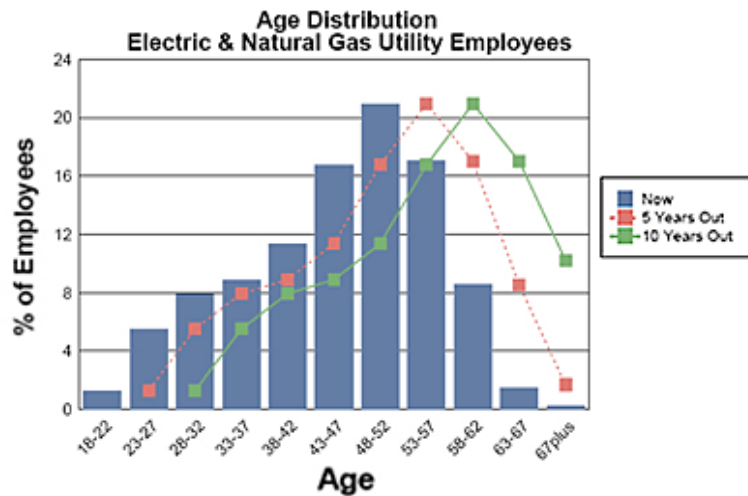
*This story is part of an ongoing series profiling the 2010 IEEE Fellows from the Chicago Section. **Dan Schonfeld** was featured in the January e-ScanFax, **Tom Cloonan** in February, **Jafar Saniie** in March, and the May issue will profile **Chang Liu**. To view the previous profiles, click on the newsletter archives tab above.*

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### **PES Offers Students Opportunity to Question Young Engineers**

On Saturday, February 20<sup>th</sup>, the **IEEE Power & Energy (PES) Chicago Chapter** offered **Illinois Institute of Technology (IIT)** students the opportunity to ask four young power engineers—**Jason Chlopek, Adam Gardner, Ami Joseph, and Leilei**

**Xiong**—about life in the industry. Thirty engineering students took advantage of the opportunity, attending the pizza luncheon at IIT's Chicago campus.



By 2013, because of attrition and retirements, 45% of engineers working for utilities may need to be replaced, making outreach to current students is critical. This graphic from the Center for Energy Workforce Development – Gaps in the Energy Workforce Pipeline 2008 Survey shows upcoming labor needs for all utility employees, and engineers fit the trend.

Xiong reports: "The event was originally scheduled from 11 a.m. until 1 p.m., but we ended up chatting with students until almost 2 p.m. The first half of the event was devoted to Q&A, where we went up and down the rows of seats and each student got the opportunity to ask the panelists a few questions. After the pizza was delivered a little after noon, students came to the front of the classroom and stood around socializing with the panelists. Each panelist had a ring of students around him or her. Personally, this event was a lot of fun for me. As a recent college graduate, I remember what it was like to be on the other side, wanting to know more about being an engineer. I encourage more engineers to get involved in student outreach, because it is a truly rewarding experience."

Students were very enthusiastic about the event as well. According to **Prasadh Sankar**, a graduate student in electrical engineering at IIT, attending the panel discussion was "really helpful in learning about current opportunities in the power industry, the work experience of the panel members, and the requirements to get into a power job." **Muhammad Sadiq Mohiuddin**, another graduate student, commented that it was good for "students to interact with people [who] just started working." He added that he would like to see this event combined with future recruiting efforts.

Kudos goes to Leilei Xiong, IIT Professor **Alexander Flueck**, and current IIT IEEE Student Branch Officer **Jun Guo** who organized the event on behalf of IEEE PES Chicago.

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### Chicago EMC Society & WIE Host EMC Society President From Rome

**Electromagnetic Compatibility Society (EMCS) Chicago Chapter Secretary Jerry Meyerhoff** reports on the Chapter's February meeting co-hosted with the **Chicago Chapter of Women in Engineering (WIE)** and featuring the EMCS President **Francesca Maradei**.

At the **Illinois Institute of Technology** Rice campus in Wheaton on February 9th, the EMC Chapter provided a catered complimentary buffet dinner of fried chicken, Italian beef, salads and desert cookies from 5:30 p.m. to 6:30 p.m. The 35 attendees enjoyed the dinner time to catch up and share stories. Then we moved into the auditorium featuring comfy stadium seating and multiple image projectors. There was a brief chapter open business meeting with reports from the committees, orchestrated by Chapter Chair, **Jack Black**.



Enjoying the dinner before the presentation are (left to right): Chris Dewitt, Francesca Maradei, Jack Black, and Marilyn and Don Sweeney.

We were fortunate to have as our featured speaker, **Francesca Maradei**, the new EMCS President and Associate Professor at **Sapienza University of Rome**. She began with a brief overview of IEEE and EMCS organization and services: **The IEEE EMC Society: The Present Picture and Short Term Directions**. During the Q&A, the topic of the recent **Toyota** “unintended acceleration” generated a lively dialog among participants and presenter. We could not determine the role of EMC, if any. There was a hunger for more technical facts and the desire for some action from EMCS, to assure the public that the industry and the profession are diligent with processes, procedures, standards, and training to control such phenomena.

Maradei’s second very detailed talk, **Modeling of Power Distribution Networks in Printed Circuit Boards**, addressed a topic of increasing importance as our beloved cellular phones and handheld electronic devices are requiring faster and faster high-speed digital circuits on PCBs. New standards such as IEC 62433 provide guidelines for the modeling of power distribution networks. Maradei discussed the design benefits from correct impedance models of high-speed digital circuits as well as prediction tools like SPICE up through 3-D/full-wave solvers. As a specific example, she analyzed various configurations of bypass and decoupling capacitors, which lead to some recommendations for design guidelines. During the Q&A, Maradei elaborated on analysis tools, and participants shared their modeling experiences.

The Chicago EMCS Programs Co-Chair, **Tom Braxton**, capped the extensive and enjoyable evening by awarding Francesca a speaker appreciation plaque.

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